



Billing Code 4140-01-P

DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

Government-Owned Inventions; Availability for Licensing

AGENCY: National Institutes of Health, HHS.

ACTION: Notice.

SUMMARY: The inventions listed below are owned by an agency of the U.S. Government and are available for licensing in the U.S. to achieve expeditious commercialization of results of federally-funded research and development.

FOR FURTHER INFORMATION CONTACT: Licensing information may be obtained by emailing Michael Shmilovich, shmilovm@mail.nih.gov, the licensing contact at the National Heart, Lung, and Blood, Office of Technology Transfer and Development Office of Technology Transfer, 31 Center Drive Room 4A29, MSC2479, Bethesda, MD 20892-2479; telephone: 301-402-5579. A signed Confidential Disclosure Agreement may be required to receive any unpublished information.

SUPPLEMENTARY INFORMATION: Technology description follows.

Resolution Enhancement for Light Sheet Microscopy Systems and Methods

Available for licensing and commercial development is a system and technique for enhancing the resolution of images acquired through light sheet microscopy by adding additional enhanced depth-of-focus optical arrangements and high numerical aperture objective lenses. The technique employs an arrangement of three objective lenses and a processor for combining captured images. The first objective lens illuminates the sample and the second and third objective lenses collect the fluorescence emissions emitted by the sample. The second objective lens focuses a first portion of the fluorescence emissions for detection by a second detection component. The third objective lens focuses a second portion of the fluorescence emissions through a diffractive or refractive optic component. A processor combines the images resulting from first and second portions of the fluorescence emissions and generates a composite image with improved axial and lateral resolution.

Potential Commercial Applications:

- High speed imaging
- Fast single cell and cellular dynamics imaging
- Super-resolution and single molecule imaging
- 3D single particle tracking
- 3D super-resolution imaging in thick samples

Competitive Advantages:

- Resolution enhancement in light microscopy

Development Stage:

- In vitro data available

Inventors: Hari Shroff (NIBIB), Yicong Wu (NIBIB), and Sara Abrahamsson

Intellectual Property: HHS Reference No. E-232-2014/0

U.S Provisional Patent Applications 62/054,484 filed 24 September 2014

PCT Application No. PCT/US2015/052047 filed 24 September 2015

European Patent Applications No. 15843742.6 filed 24 September 2017

US Patent No. US 10,401,604 issued 3 September 2019

Related Technology:

HHS Reference No. E-078-2011/0

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Collaborative Research Opportunity:

The National Institute of Biomedical Imaging and Bioengineering is seeking statements of capability or interest from parties interested in collaborative research to further develop, evaluate or commercialize Resolution Enhancement Technique for Light Sheet Microscopy Systems and Methods. For collaboration opportunities, please contact Michael Shmilovich 301-435-5019 or shmilovm@nih.gov.

Dated: October 17, 2019.

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